

**Table 1. Demographic and clinical data**

Demographic and clinical data of all study patients			
	Radial group (n=130)	Femoral group (n=130)	P value
Age	66.8±8.9	66.7±10.2	0.856
Male (%)	60.8	65.4	0.441
Hypertension (%)	77.7	88.5	0.021
Hyperlipidaemia (%)	56.2	47.7	0.172
Diabetes mellitus (%)	36.2	36.9	0.898
Obesity (%)	14.6	34.6	0.0003
Smoker (%)	28.5	26.9	0.889
Peripheral artery disease (%)	13.9	13.8	1.000
Coronary artery disease (%)	24.6	24.6	0.776
Positive family history (%)	6.9	9.2	0.495
Dialysis (%)	6.2	3.1	0.237

**TCT-505****Impact of coronary artery disease presence on the long-term follow-up of carotid artery stenting**

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**Background:** Carotid artery stenting (CAS) has become an alternative for carotid endarterectomy in the treatment of carotid arteries atherosclerosis due to low procedural injury and comparable procedural risk. Patients with coronary artery disease have a higher risk of surgical treatment than in CAS procedure. The impact of coronary artery disease (CAD) during long term follow-up (FU) needs reconsidering due to the intensification of aggressive pharmacotherapy in CAD during recent years.

**Methods:** Data of 130 symptomatic and asymptomatic patients undergoing CAS from January 2002 to December 2010 were divided in two groups: with and without CAD. All CAS procedures were performed with application of cerebral protection devices. Major adverse cardiac and cerebrovascular events (MACCE) during follow-up were defined as combination of death (cardiac and non-cardiac), myocardial infarction and stroke/TIA. Long-term outcomes of patients were stratified based on history of CAD.

**Results:** The mean age of patients was 66±9 years, majority of patients were male (80.2%). Long-term follow-up data were available in 86.2% of patients. During mean follow-up of 71.9±31.7 months all-cause mortality rate was 19.6%. The rates of myocardial infarction, stroke/TIA, and MACCE - were 14.3%, 11.6%, and 37.5% respectively. The frequency of MACCE during long-term follow-up was higher in patients with CAD vs without CAD (40.8% vs 6.7%, p=0.01) and the mortality rate in the two groups was (22.2% vs 0%, p=0.07) respectively.

**Conclusions:** Patients with symptomatic or asymptomatic carotid stenosis are a high-risk individuals with many coexisting diseases. The presence of CAD increases the risk of MACCE in such patients during long-term follow-up.

**TCT-506****Predictors Of Carotid Clamping Intolerance During Carotid Artery Stenting With Proximal Embolic Protection Device. Results From An Italian Registry.**

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**Background:** Current guidelines recommend to perform Carotid Artery Stenting (CAS) procedures with embolic protection devices (EPDs). Among these, proximal EPDs such as the endovascular clamping (MO.MA. Medtronic INC) have the advantage of providing embolic protection during all phases of the intervention. However, endovascular clamping of the common carotid artery can expose the

ipsilateral hemisphere to hypoperfusion and produce transient neurological symptoms (clamping intolerance). The aim of the present study was to identify the predictors of developing carotid clamping intolerance during CAS with MO.MA.

**Methods:** From March 2010 to March 2012, 605 consecutive patients underwent CAS using MO.MA. as EPD at our institution. Clamping intolerance was defined as any transient neurological deficit observed during occlusion time, but showing a complete recovery within 20 min after restoring antegrade flow. To identify predictors of clamping intolerance a logistic regression model was developed including all patients' clinical characteristics, the presence of ICA stenosis >90%, the presence of ipsilateral ECA stenosis, the presence of contralateral ICA stenosis (75-99%) and occlusion, clamping pressure ≤40 mmHg, and arterial pressure delta >50 mmHg.

**Results:** 184 patients (30.4%) developed clamping intolerance during the CAS procedure. Compared to patients without clamping intolerance, those who experienced intolerance showed a lower clamping pressure (42.3±12.7 vs 61.9±5.4 mmHg, p<0.001). ROC curve analysis showed that clamping pressure was the most consistent predictor of clamping intolerance with a c-statistic of 0.85 (95% CI 0.82-0.88) and best cut-off being ≤40 mmHg (sensitivity 68.5%, specificity 93.3%). Logistic regression analysis showed that the most powerful independent predictor of clamping intolerance was a clamping pressure ≤40 mmHg (HR=34.2, 95% CI 19.7-59.6) and that the most powerful clinical predictor of such clamping pressure was the presence of contralateral ICA occlusion (HR=3.1, 95% CI 1.5-6.2).

**Conclusions:** Clamping intolerance may occur in up to a third of the patients undergoing CAS with endovascular clamping. This event is more common in those patients presenting a clamping pressure ≤40 mmHg.

**TCT-507****Racial/Ethnic Variation in Carotid Artery Revascularization Utilization and Outcomes: Analysis from the NCDR®**

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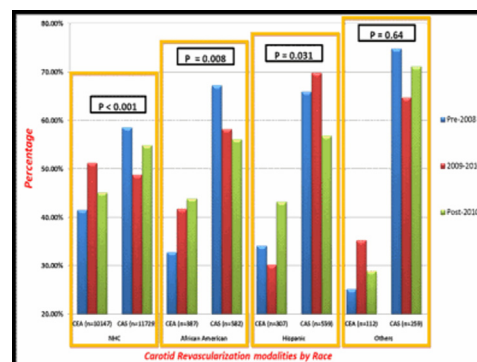
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**Background:** It is not known whether racial or ethnic disparities observed with other revascularization procedures are also seen with carotid artery stenting (CAS) and endarterectomy (CEA).

**Methods:** We compared the utilization of CAS and CEA across racial/ethnic groups within the CARE Registry® between May 2005 - Dec 2012. Differences in clinical characteristics, procedural variables, and major adverse cardiac and cerebrovascular events (MACCE) were studied.

**Results:** Between 2005 and 2012, of the 13,129 patients who underwent CAS, majority were non-Hispanic Caucasians (NHC 89.3%), followed by African Americans (AA 4.4%), Hispanics (H 4.3%), and other groups (OG 2.0%). A similar distribution was observed among the 10,953 patients undergoing CEA (NHC 92.6%, AA 3.5%, H 2.8%, and OG 1.1%). During this time period, a trend toward proportionate increase in CAS utilization was observed in NHC and OG whereas the opposite was observed among H and AA (Fig 1). This trend persisted even when hospitals performing both CAS and CEA were exclusively analyzed. Adherence to anti-platelet and statin therapy was significantly lower among AA post-CEA. In-hospital MACCE remained comparable across groups post-CAS whereas post CEA, there was a significant decline in MACCE among NHC only (p=0.04). At 30 days, the incidence of death (2.2%), stroke (7.2%), and MACCE (8.8%) was higher among AA post-CEA (p<0.05).



**Conclusions:** During the study period, utilization of CAS & CEA was highest in NHC. There was a trend toward increased CAS utilization over time among NHC and OG, and a trend toward increased CEA utilization among H and AA.

## TCT-508

### Transcatheter Treatment of Patients after Extensive Ischemic Stroke

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**Background:** The research investigates the possibility of reducing cognitive disorders and restoring activities of daily living in patients after extensive ischemic stroke using transcatheter cerebral revascularization.

**Methods:** 92 patients aged 32-72 having undergone extensive ischemic stroke spreading to different parts of the brain were examined. The patients underwent: Index Bartels (IB), CT, brain MRI, scintigraphy (SG), rheoencephalography (REG), MUGA. 68 patients underwent transcatheter treatment - Test Group. 24 patients underwent conservative treatment - Control Group. High-energy pulsed laser systems were used for revascularization of the major intracranial arteries; low-energy continuous laser systems were used for revascularization of the distal intracranial branches.

**Results:** Test Group. 66 (95.59%) patients had a good immediate angiographic outcome manifested in the restoration of lumen and patency of the affected vessels as well as in collateral revascularization. 12-24 months later the following positive dynamics was observed: good clinical outcome (almost complete intellectual abilities and motor functions restoration - IB90-100) - 14 (20.59%) patients; satisfactory clinical outcome (incomplete intellectual abilities and motor functions restoration - IB75-85) - 30 (44.12%) patients; relatively satisfactory clinical outcome (partial intellectual abilities and motor functions restoration - IB60-70) - 24 (35.29%) patients; relatively positive clinical outcome (absence of negative dynamics with insignificant restoration of motor functions - IB<60) was not obtained in any case. Control Group. 12-24 months later the following dynamics was observed: good clinical outcome was not obtained in any case; satisfactory clinical outcome was not obtained in any case; relatively satisfactory clinical outcome - 4 (16.67%) cases; relatively positive clinical outcome - 20 (83.33%) cases.

**Conclusions:** In the treatment of extensive ischemic stroke effects, transcatheter cerebral revascularization is a more effective method than the therapeutic one. It can significantly reduce the level of cognitive impairment and return patients to active daily life.

## TCT-509

### Impact On Outcome Of Different Types Of Carotid Stents: Results From The European Registry Of Carotid Artery Stenting.

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**Background:** At present few data exist on the impact on outcome of the use of different carotid stent types during neuroprotected carotid artery stenting (CAS). Aim of this study was to evaluate the outcomes associated with neuroprotected CAS in selected high volume centers according to different carotid stent design.

**Methods:** From January 2007 to December 2007, 1611 patients underwent neuroprotected CAS in eight European Centers (ERCAS registry). An independent clinical events committee adjudicated the events. All types of commercially available carotid stents were used (closed, open and hybrid cell designed). Open cell designed stent were classified according to cell free area (< 7.5 mm<sup>2</sup> or >7.5 mm<sup>2</sup>).

**Results:** 728 closed-cell, 456 hybrid-cell, 234 <7.5 mm<sup>2</sup> open-cell, and 193 >7.5 mm<sup>2</sup> open-cell stents were implanted. At 30-days 18 strokes occurred (1.12%; 7 (0.96%) in those treated with a closed-cell, 2 (0.44%) in those with a hybrid-cell, 3 (1.28%) in those with a <7.5 mm<sup>2</sup> open-cell, and 6 (3.10%) in those treated with a >7.5 mm<sup>2</sup> open-cell stent, p=0.029). Overall 30 days stroke and death rate was 1.36%, and no statistically significant difference was observed among the groups.

**Conclusions:** CAS is a reasonable alternative to carotid endarterectomy as it is associated with excellent outcomes when performed in well-experienced high volume centers. Data of the present study suggest that the use of open cell designed stent with free cell area >7.5 mm<sup>2</sup> is associated with an increased 30 days stroke risk. However, future randomized trials are needed to confirm this finding.

## TCT-510

### Bovine arch vs aortic arch type III. The importance of the type of complex aortic arch in carotid stenting.

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**Background:** Some descriptions had shown increased risk for neurological complications in the case of aortic arch anomalies, bovine arch frequency was 10.2%, technical failure 12% and complications in 20% of patients. The aim is to compare the frequency of adverse events in type III arch patients with bovine arch patients in complex aortic arch (CAA) carotid artery stenting.

**Methods:** 407 carotid angioplasties with stenting were done. The patients were divided into two groups: CAA (group 1: 114 patients) and control group (group 2: 293 patients). Patients in the CAA were divided into type III arch (group 3: 48 patients) and bovine arch (group 4: 66 patients). The endpoints were the composite of major cardiovascular adverse events (death, major stroke and myocardial infarction), major stroke,transitory ischemic attack (TIA) and the composite of contrast medium nephropathy, haemoglobin dropping more than 2 grs within 24 hours after procedure or complications related to puncture site such as hematoma, pseudoaneurysm or arterio venous fistula, called "other adverse events".

**Results:** The rate of TIA was a little higher in the CAA group 2.63% (p=0.022), compared with control, because of the higher rate in the type III group (4.1% p=0.003). For the endpoint "other adverse events" there were more events in the CAA group (12 patients 10.52% p= 0.022), but this depends on a significantly higher frequency of events in the type III group (8 patients 16.6% of the type III p= 0.001). At 30 days follow up there were increases in the frequency of major stroke and TIA in the CAA group (4.3% and 2.63% of group 1, p= 0.023 and 0.022). These events were more frequent in group 3 (type III) 4.16% for both endpoints p= 0.108 for major stroke and 0.038 for TIA.

**Conclusions:** There were significantly more periprocedural adverse events in the CAA group in the endpoint of "other adverse events" and TIA. In these two cases, most events were in the type III aortic arch group. The aortic arch type III seems to be responsible for most adverse events in the carotid stenting of the CAA anatomy.